

A Comparative Study of Vocabulary Learning Strategies Used by Marine Engineering Students and Iranian EFL Learners

Davood Mashhadi Heidar*

Department of English, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran
davoodm_tarbiatmodares@yahoo.com

Majid Sadeghzadeh Hemayati

Department of English, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran
m_s_hemayati@yahoo.com

Abstract

The present study explored the vocabulary learning strategies used by Iranian EFL learners and Marine Engineering (ME) students by using the categorization of vocabulary learning strategies proposed by Schmitt (1997). A vocabulary learning strategies questionnaire was administered to 30 EFL learners and 43 ME students. Then, the strategies used by each group were determined and the two groups were compared with each other. It was found that both groups used determination strategies more frequently than social strategies for discovering a new word's meaning. The most frequently used discovery strategy by both groups was found to be "bilingual dictionary". The second and third most frequently used strategy for discovery by EFL learners and ME students was found to be "monolingual dictionary" and "guess from textual context", respectively. It was also revealed that EFL learners used memory strategies more frequently than other strategies for consolidating the meaning of new words and ME students used cognitive strategies the most frequently. Both groups were found to use "verbal repetition" more frequently than all other consolidation strategies. The second most frequently used strategy by EFL learners was "use English-language media" whilst for ME students they were "written repetition" and "word lists". The comparison of the strategy use by the participants in the two groups showed no significant difference.

Keywords: vocabulary learning strategy; determination strategies; social strategies; cognitive strategies; metacognitive strategies

1. Introduction

Vocabulary or word can be defined in a number of ways based on the particular aspect from which it is approached. However it is defined, there is no doubt in its importance, as Folse (2004, p. 3) states,

"Lack of grammar knowledge can limit conversation; lack of vocabulary knowledge can stop conversation." Similarly, Chastain (1988) suggests that the most common cause of learners' inability to make a successful communication during communication

activities is the lack of needed vocabulary. Many linguists have stressed the vital role of vocabulary in language (e.g. Chastain, 1988; Llach, 2011; Min, 2013; Zimmerman, 1997).

L2 vocabulary acquisition starts as soon as L2 is faced given the fact that vocabulary marks the onset of language development and continues long after other aspects of the L2 have been mastered (Llach, 2011). Nevertheless, the teaching and learning of vocabulary have been undervalued in the field of SLA throughout its varying stages (Heidari & Tavakoli, 2012; Shintani, 2013; Webb, 2007; Zimmerman, 1997). However, today's language teachers and researchers have realized the important role of vocabulary in different pedagogical tasks. Undoubtedly, almost all L2 learners and their teachers are well aware of the fact that learning an L2 involves the learning of large numbers of words (Mohseni-Far, 2007).

In the last 25 years, the field of SLA has seen the re-emergence of interest in the area of vocabulary (Meara, 1987) and the appearance of a newly recognized aspect, namely learner strategies (Schmitt, 1997). The present study is intended to investigate and compare the vocabulary learning strategies used by Marine engineering students and EFL learners.

2. Literature Review

In the beginning, the emphasis was on identifying beneficial language strategies (Schmitt, 1997) which resulted in the development of a list of ten strategies by Stern (1975). As this field evolved, new categorizations were proposed such as what O'Malley & Chamot (1990) introduced and divided language learning strategies into three major types of metacognitive, cognitive and social/affective. In the one of the most comprehensive attempts to classify language learning strategies, Oxford (1990) introduced six strategy categories including memory, cognitive, compensation, metacognitive, affective and social.

Schmitt (1997) has worked on vocabulary

learning strategies. He found four strategy groups of social, memory, cognitive and metacognitive most useful for his purpose. However, he found some drawbacks in Oxford's taxonomy. Firstly, there was no category which adequately described the kind of strategies used by an individual when faced with discovering a new word's meaning without recourse to another person's expertise. Therefore, he created a new category for these strategies: determination strategies. Secondly, Oxford's categories proved inadequate in places, as some strategies could easily fit into two or more groups, making their classification difficult (Schmitt, 1997). In the end, he classified 58 vocabulary learning strategies in two categories of strategies for discovering the meaning of new words and the strategies for consolidating the meaning of new words. Then, he divided the discovery strategies into determination and social strategies and divided the consolidation strategies into social, memory, cognitive and metacognitive strategies.

Many studies have focused on vocabulary learning strategies. In one of these studies in Turkey, Yilmaz (2010) found that compensation strategies were the most frequently used strategies followed by metacognitive, cognitive, social, memory and affective strategies. He also reported higher frequency of using affective strategies by good students. He related the students' use of particular strategies to culture and education context in Turkey where he claimed that students are supplied with very restricted opportunities to use functional practice strategies especially in large classes.

Magogwe and Oliver (2007) used a modified version of Oxford (1990)'s Strategy Inventory for Language Learning (SILL) in their study on vocabulary learning strategies most frequently used by students at three levels including primary, secondary and tertiary levels in Botswana. They reported that at the primary school level the mean score of social strategy use

was greater than that of metacognitive, cognitive, affective, memory and compensation strategies, and at the secondary and tertiary level the most preferred strategies were of a metacognitive kind. They found that students exhibited a low level of preference for affective strategies. They ascribed the higher frequency of using metacognitive strategies by secondary and tertiary students to the fact that students at higher levels of education are more independent learners and metacognitive strategies best match this characteristic. However, to explain the finding that metacognitive, social and cognitive strategies were more preferred than affective, memory and compensation strategies across all levels of education, they suggested the possibility that these may be culturally determined strategies as Yilmaz (2010) used the same explanation. In some other works, it can be seen that culture has been suggested as a determiner of strategy selection by learners, as is evident in the following.

In a study in Iran on the relationship between EFL learners' beliefs about language learning, their language learning strategy use and their language proficiency using SILL, Abedini, Rahimi, and Zare-ee (2011) reported cognitive strategies as the most preferred strategies and metacognitive strategies as the least preferred one. It is in direct contradiction with Magogwe and Oliver (2007) and in partial contradiction with Yilmaz (2010) in whose study cognitive strategies were found to be the third most preferred strategies. Abedini, Rahimi, and Zare-ee (2011) related their finding to the instructors' teaching method. They claimed that teachers in Iran are usually the only persons that speak in the class, the only persons who determine what to do or what not to do and the only persons who evaluate students' progress and in such a condition students do not learn to take responsibilities for better learning and seeking practice opportunities outside the classroom. So they do not learn to plan and

set goals for themselves. In another study in Iran on vocabulary learning strategies, the cognitive strategies were found to be the most frequently used ones – like what reported by Abedini et al. (2011) – and the social strategies were found to be the least frequently used ones (Ghavamnia, Kassaian, & Dabaghi, 2011). They speculated that Iranian students are mostly ignorant of the potential of socio-affective strategies and related their findings to the context of learning situation. Salahshour, Sharifi, and Salahshour (2013) also found about Iranian EFL learners that they most frequently use metacognitive strategies and least frequently use cognitive strategies and blamed the type of literacy practices in the mainstream curriculum which normally do not focus on developing students' cognitive strategies.

In Hong Kong, Tam (2013) investigated vocabulary learning strategies and their possible relationship with some factors, e.g. gender, and reported that compensation strategies were the most popular for learning English among Hong Kong university students, while memory and affective strategies were the least popular. He concluded that students from similar cultural backgrounds tended to use the same language learning strategies.

Ping and Siraj (2012) studied vocabulary learning strategies among Chinese EFL learners and reported that a variety of vocabulary strategy use was lacking among the learners, especially review, note-taking, and memory encoding strategies, that the low processing vocabulary learning strategies were still dominant among the learners, and that deep processing strategies are less used by the learners. They also reported that metacognitive learning strategies are less applied by the learners probably indicating that they were not aware of the performance of these strategies for vocabulary learning.

Dóczy (2011) reported similar findings about the use of metacognitive strategies according to which the participants in

Hungarian secondary and tertiary educational institutions use social and metacognitive strategies less frequently. On the contrary, in a study in Algeria Nacera (2010) revealed that the metacognitive strategies were the most frequently used strategies although participants used a wide range of direct and indirect learning strategies. Also, in a study on technical vocabulary learning strategies of engineering students in Thailand, Wanpen, Sonkoontod, and Nonkukhetkhong (2013) found that all of the samples used metacognitive strategies most frequently and related it to their knowledge about the ways of developing technical vocabulary by using them frequently. In addition, they reported that metacognitive strategies, especially using the English-language media, were popular strategies. They stated that general English learners preferred memory and cognitive to determination and social strategies, while students in vocational stream frequently used social and determination strategies more than memory and cognitive strategies. In a study on Spanish-speaking speakers seeking to learn Basque and English as their second language, Catalán (2003) revealed that memory strategies and cognitive strategies related to memory fall within the most used strategies.

A brief examination of the-above-mentioned works on learners' learning strategies shows no agreement among their results. Thus, it is still required to continue studying the use of learning strategies by EFL learners and learners of other streams with different educational and cultural backgrounds in order to finally discover its underpinning and to be able to answer the question 'why learners chose the learning strategies they have chosen'. Therefore, the present study aimed at studying the frequency of using vocabulary learning strategies by Iranian EFL learners and Marine Engineering students for which the list of vocabulary learning strategies proposed by Schmitt (1997) was made the basis.

3. Methodology

3.1. Objective

Using descriptive and inferential statistics, the present study sought to investigate the VLSs used by EFL learners and ME cadets and compare the two groups.

3.2. Participants

In total, 60 intermediate participants (30 EFL learners and 30 ME students) participated in the study who were selected by using an OPT and simple randomization method out of 150 ME students and 200 EFL learners. The ME students with the age range of 19-25 years old were selected out of the students of this discipline studying in Faculty of Marine Science, Petroleum University of Technology located in Mahmudabad of Mazandaran Province, Iran. One important feature of this discipline is the fact that all its textbooks and examinations are in English and so these students need to improve their English language competence in order to be successful in their program. In addition, they would work as ship engineers in an international workspace. The EFL learners with the age range of 18-25 years old were randomly selected from EFL learners in Pardis English Language Institution located in Mahmudabad, Mazandaran Province, Iran.

3.3. Instrument

The questionnaire used for finding the frequency of using vocabulary learning strategies was adopted from Schmitt (1997) whose reliability was shown to be 0.78 (Hamzah, Kafipour, & Abdullah, 2009). The questionnaire consisted of three sections. Section 1 included some questions about participants' demographic information including their age, gender, background knowledge and their interest in language learning. Section 2 included 14 closed-form questions about the frequency of using different vocabulary learning strategies for discovering a new word's meaning. Section 3 included 44 closed-form questions about the frequency of using different strategies for consolidating a new word's meaning

when it was faced. The questions of sections 2 and 3 were phrased as statement asking the frequency of strategy use for which the participants were asked to check 'always', 'often', 'sometimes', 'rarely', and 'never'. All these statements were the Persian translation of the strategies listed by Schmitt (1997).

3.4. Data Collection Procedure and Data Analysis

A questionnaire of vocabulary learning strategies developed by Schmitt (1997) was administered to 30 EFL learners and 30 ME students. To analyze the collected data, the answers provided by participants were weighed in the order of "always", "often", "sometimes", "rarely" and "never" as 5, 4, 3, 2 and 1, respectively. Then, the frequency of use of different strategies was calculated using the MS-Excel software package (ver. 2007). Furthermore, to test the difference

in the use of strategies by the studied groups, an independent-sample t-test was conducted by IBM SPSS Statistics software package (ver.22).

4. Results

As is evident in Figure 1, both EFL learners and Marine Engineering (ME) students use determination strategies more frequently than social strategies for the discovery of a new word's meaning. Out of determination strategies, the most frequently used strategy by EFL learners was found to be 'bilingual dictionary' (81.88%) and by ME students to be 'guess from textual context' (81.33%). The second most frequently used strategy for discovering a new word's meaning by EFL learners and ME students was found to be 'monolingual dictionary' and 'bilingual dictionary', respectively (Table 1).

Table 1. The percentage of using different strategies by EFL learners and Marine Engineering (ME) students for discovering a new word's meaning

Strategy No.	Description	EFL learners		ME students	
		N	Percentage (%)	N	Percentage (%)
<i>Determination Strategies</i>					
1	Analyze part of speech	30	48.75	30	58.67
2	Analyze affixes and roots	30	55.00	30	50.67
3	Check for L1 cognate	30	56.25	30	48.00
4	Analyze any available pictures or gestures	30	62.50	30	53.33
5	Guess from textual context	30	71.25	30	81.33
6	Bilingual dictionary	30	81.88	30	76.00
7	Monolingual dictionary	30	76.25	30	70.67
8	Word lists	30	37.50	30	34.67
9	Flash cards	30	30.63	30	30.67
Average			57.78		56.00
<i>Social Strategies</i>					
10	Ask teacher for an L1 translation	30	63.13	30	42.67
11	Ask teacher for paraphrase or synonym of new word	30	63.13	30	50.67
12	Ask teacher for a sentence including the new word	30	56.25	30	40.00
13	Ask classmates for meaning	30	61.25	30	64.00
14	Discover new meaning through group word activity	30	36.88	30	45.33
Average			56.13		48.53

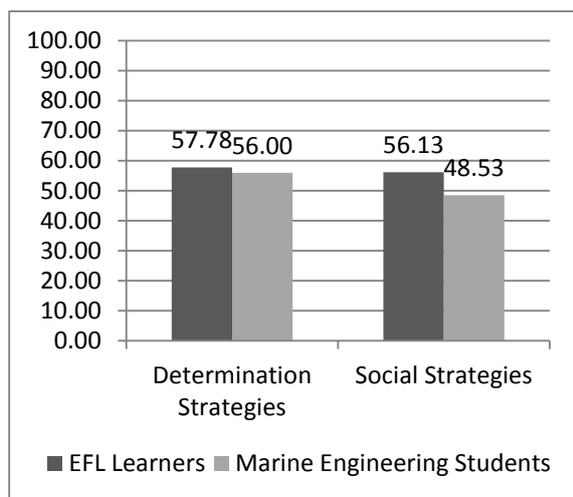


Figure 1. The comparison of the strategy use by EFL learners and Marine Engineering students for the discovery of a new word's meaning

Table 2 shows the percentage of the use of various strategies by EFL learners and ME students for consolidation of the meaning of a word once it has been encountered. It was revealed that both groups use cognitive strategies the most frequently (Figure 2). Among different strategies, EFL learners were found to use 'verbal repetition' more frequently than all other strategies. The second most frequently used strategy was shown to be 'continue to study over time'. The most frequently used strategy by ME students was found to be 'verbal repetition' followed by 'written repetition' and 'use English-language media' as the second most frequently used strategy with the same use frequency of 80.00%.

Table 2. The percentage of using different strategies by EFL learners and Marine Engineering (ME) Students for consolidating a new word's meaning once it is encountered

Strategy No.	Description	EFL learners		ME students	
		N	Percentage (%)	N	Percentage (%)
<i>Social Strategies</i>					
15	Study and practice meaning in a group	30	43.75	30	40.00
16	Teacher checks students' flash cards or word lists for accuracy	30	32.50	30	29.33
17	Interact with native speakers	30	41.88	30	41.33
Average		39.38		36.89	
<i>Memory Strategies</i>					
18	Study word with a pictorial representation of its meaning	30	45.63	30	58.67
19	Image word's meaning	30	67.50	30	73.33
20	Connect word to a personal experience	30	57.50	30	66.67
21	Associate the word with its coordinates	30	51.25	30	53.33
22	Connect the word to its synonyms and antonyms	30	56.25	30	61.33
23	Use semantic maps	30	37.50	30	36.00
24	Use scales for gradable adjectives	30	40.00	30	50.67
25	Peg method	30	63.13	30	60.00
26	Loci method	30	61.25	30	49.33
27	Group words together to study them	30	56.88	30	53.33
28	Group words together spatially on a page	30	66.25	30	60.00
29	Use new word in sentences	30	66.88	30	62.67
30	Group words together within a storyline	30	42.50	30	34.67
31	Study the spelling of a word	30	61.25	30	57.33
32	Study the sound of a word	30	61.88	30	68.00
33	Say new word aloud when studying	30	66.88	30	62.67
34	Image word form	30	75.00	30	77.33
35	Underline initial letter of the word	30	42.50	30	32.00

Strategy No.	Description	EFL learners		ME students	
		N	Percentage (%)	N	Percentage (%)
36	Configuration	30	40.00	30	30.67
37	Use keyword method	30	55.63	30	49.33
38	Affixes and roots (remembering)	30	53.75	30	50.67
39	Part of speech (remembering)	30	60.00	30	60.00
40	Paraphrase the words meaning	30	73.13	30	54.67
41	Use cognates in study	30	56.25	30	57.33
42	Learn the words of an idiom together	30	63.75	30	72.00
43	Use physical action when learning a word	30	43.75	30	57.33
44	Use semantic features grids	30	46.25	30	40.00
Average			56.02		55.16
<i>Cognitive Strategies</i>					
45	Verbal repetition	30	83.13	30	85.33
46	Written repetition	30	67.50	30	80.00
47	Word lists	30	64.38	30	72.00
48	Flash cards	30	35.00	30	38.67
49	Take notes in class	30	67.50	30	64.00
50	Use the vocabulary section in your textbook	30	61.25	30	65.33
51	Listen to tape of word lists	30	45.00	30	46.67
52	Put English labels on physical objects	30	29.38	30	32.00
53	Keep a vocabulary notebook	30	57.50	30	61.33
Average			56.74		60.59
<i>Metacognitive Strategies</i>					
54	Use English-language media (songs, movies, newscasts, etc.)	30	75.63	30	80.00
55	Testing oneself with word tests	30	51.88	30	56.00
56	Use spaced word practice	30	35.63	30	36.00
57	Skip or pass new word	30	31.25	30	36.00
58	Continue to study word over time	30	79.38	30	70.67
Average			54.75		55.73

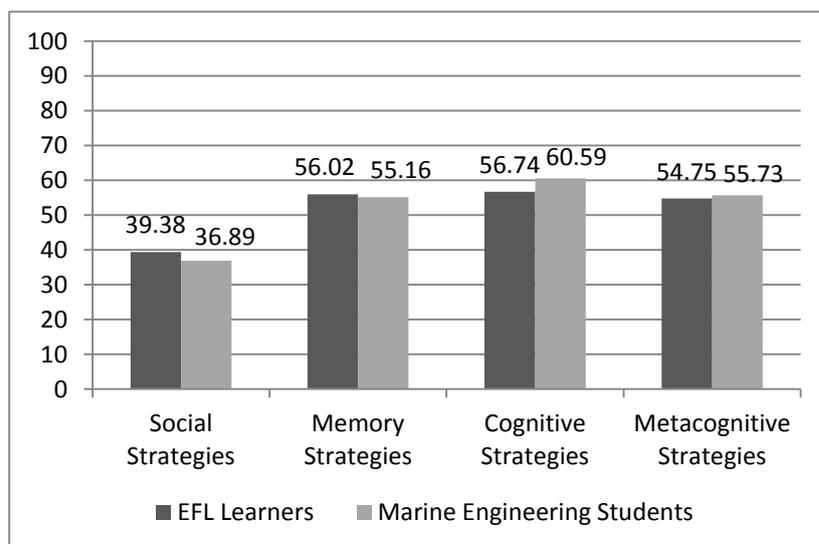


Figure 2. The comparison of the strategy use by EFL learners and Marine Engineering students for the consolidation of the meaning of a word once it has been encountered

Figure 2 Compares the strategy use by EFL learners and Marine Engineering students for the consolidation of the meaning of a new word.

To compare ME students and EFL learners' use of vocabulary learning strategies, an independent sample *t* test was run.

Table 3. The results of independent-samples *t*-test for the comparison of the frequency of the use of the strategies for discovering and consolidating the meaning of new words between EFL learners ($N = 30$) and ME students ($N = 43$)

Strategies	df	<i>t</i>	Sig. (two-tailed)	Mean difference	95% confidence interval		Eta squared
					Lower	Upper	
<i>Discovery</i>							
Determination strategies	59.96	0.543	0.589 ^{ns}	1.49	-4.00	6.98	0.004
Social strategies	56.15	1.291	0.202 ^{ns}	4.31	-2.38	11.00	0.023
<i>Consolidation</i>							
Social strategies	50.60	1.551	0.127 ^{ns}	6.39	-1.88	14.66	0.33
Memory strategies	55.37	1.011	0.316 ^{ns}	2.64	-2.60	7.88	0.014
Cognitive strategies	63.82	-1.805	0.076 ^{ns}	-5.91	-12.45	0.63	0.044
Metacognitive strategies	68.64	0.044	0.965 ^{ns}	0.13	-5.98	6.25	0.000

ns = not significant

Independent-samples *t* test showed no significant difference in the frequency of the use of the strategies by EFL learners and ME students (Table 4). As eta squared shows (Table 4), the magnitude of the differences in the means was very small.

5. Discussion

English is taught as a foreign language in Iranian schools where language learning is shaped largely by classroom practices without substantial support from social contexts outside the classroom (Ghorbani, 2009). This can be regarded as the reason why participants used determination strategies more frequently than social strategies for discovering a new word's meaning (see Table 1). It is in agreement with the findings of Komol and Sripetpun (2011) who found determination strategies as the most preferred and social strategies as the least preferred strategies.

On the other hand, in the Iranian educational system, the curriculum is aimed at improving students' grammar knowledge

in reading and translation, thus prompting high school English teachers to use the Grammar-Translation method. Although the revised curriculum for Iranian high school English education has appeared to place more emphasis on communicative competence in the last decade, the system is still far from privileging communicative strategies and teachers still continue to practice the Grammar-Translation method (Ghorbani, 2009). This is reflected in the finding that "bilingual dictionary" is the most frequently used strategy by both EFL learners and ME students. It can be related to the fact that the Grammar-Translation method encourages the use of dictionaries. It should be noted that "monolingual dictionary" was found to be the second most frequently used strategy by EFL learners and the third most frequently used strategy by ME students (see Table 2).

The second most frequently used strategy by ME students for discovery was found to be "guess from textual context" (76.28%) (see Table 2). The textbooks these

students have to study in the standard ME program are in English. Therefore, they take a short-term English language course before their main courses in order to improve their English language competence. These courses are mainly based on the communicative approach in which guessing from textual context for discovering a new word's meaning is encouraged. On the other hand, it would be time-consuming for these students to look for the meaning of all unfamiliar vocabularies in a bilingual dictionary. So, if they cannot find the meaning of a word in a bilingual dictionary, they try to guess the meaning from the word's context and, when they fail, they resort to a monolingual dictionary, which was ranked as the third most frequently used strategy. It should be noted that most marine engineering technical terms cannot be found in bilingual dictionaries which is another reason for the high frequency of using monolingual dictionary by ME students.

Regarding the consolidation strategies outlined in Table 3, EFL learners use memory strategies more frequently than other strategies for consolidating the meaning of a word once it has been encountered and ME students use cognitive strategies the most frequently (see Table 1). In other words, according to Oxford's (1990) definitions of strategies, EFL learners are more concerned with remembering and retrieving information whilst ME students are more concerned with understanding and producing language. It is justifiable since EFL learners try to learn English solely for learning this language but ME students have to learn language to use this competence for studying other subjects and for using it in their future career. Çelik and Toptas (2010) reported that intermediate level learners preferred to use cognitive strategies more frequently than pre-intermediate and elementary level learners. Since participants' language proficiency was not determined in

the present study, no conclusion can be made about the possible relationship between language proficiency and strategy use.

Memory strategies have been reported to be the most preferred in Ahour and Abdi (2015), Wanpen et al. (2013) and Catalán (2003) and the least preferred in Chan (2014) and Tam (2013). For the individual strategies used for consolidation, 'verbal repetition' was found to be the most frequently used strategy by both groups for consolidating the meaning of words. Once again, this finding can be related to the fact that the Grammar-Translation approach is used for teaching English in public schools. In other words, the Grammar-Translation approach overshadows all efforts in private language institutions to teach language through any approaches other than the Grammar-Translation method. The second most frequently used consolidation strategy by EFL learners was found to be "use English-language media" (78.00%); for ME students this was "written repetition" and "word list" (74.42%). The high frequency of the use of English-language media by EFL learners can be explained by the fact that there is a large amount of English-language media available to these learners through their learning materials in language institutions. In addition, they are not short of time as compared to ME students who have to learn vocabularies as soon as possible. It is usually perceived that consolidating the meaning of vocabularies through using English-language media would be effective only on a long-term basis. For the same reason, ME students use "written repetition" and "word list" since they have been controversially taught during their formal language classes in high schools that these strategies are the most effective ones for consolidating the meaning of words.

The least frequently used strategies by EFL learners and ME students were found to be social strategies (see Table 1). Social

strategies use interaction with other people to improve language learning (Schmitt, 1997). There is no doubt as to the benefits of interaction in language learning (discussed in detail in Dansereau, 1988; Verga and Kotz, 2013). So, it is disappointing that both EFL learners and ME students rarely use these strategies.

6. Conclusion

A brief look at the most reviewed studies on vocabulary/language learning strategies (see Literature Review) shows that they offer contradictory results. It can be seen that all strategies, i.e., compensation, cognitive, metacognitive, memory and social, were found to be the most frequently used strategies in different studies. To explain their findings, researchers have resorted to various explanations, which can be summarized as follows:

1. The ignorance of the various strategies (Mutalib et al., 2014; Ghavamnia et al., 2011);
2. The influence of culture (Tam, 2013; Yilmaz, 2010; Magogwe & Oliver, 2007);
3. The influence of educational context (Salahshour et al., 2013; Abedini et al., 2011; Ghavamnia et al., 2011; Yilmaz, 2010); and
4. The influence of learners' characteristics and competence (Magogwe & Oliver, 2007).

In the present study, memory strategies and cognitive strategies were found to be the most frequently used strategies by EFL learners and ME students for consolidation, respectively and metacognitive strategies were the second most frequently used strategies. In four other studies in Iran, memory, cognitive and metacognitive strategies were reported to be the most frequently used strategies by EFL learners (Ahour & Abdi, 2015; Salahshour et al., 2013; Abedini et al., 2011; Ghavamnia et al., 2011). Therefore, it seems that culture and educational context can be regarded as possible factors in choosing learning

strategies. However, it should not be forgotten that most EFL learners are not usually taught about language learning strategies and their effectiveness. In other words, they use these strategies on the basis of their own experiences about their effectiveness.

Therefore, it is recommended to conduct longitudinal studies on effective VLSs and then, to teach them to EFL learners in order to improve EFL learners' vocabulary knowledge.

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